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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/839,763	04/20/2001	Kyle S. Leboutz	1382/005	1283

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EXAMINER

HASSANZADEH, PARVIZ

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 03/12/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/839,763

Applicant(s)

LEBOUITZ ET AL.

Examiner

Parviz Hassanzadeh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-71 is/are pending in the application.
- 4a) Of the above claim(s) 14-24, 36-38 and 45-71 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-13 is/are allowed.
- 6) ☒ Claim(s) 25-35 and 39-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-71 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-13, 25-71, drawn to apparatus, classified in class 156, subclass 345.1.
- II. Claims 14-24, drawn to method, classified in class 438, subclass 706.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used for coating a sublimated material on the surface of a sample.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

This application contains claims directed to the following patentably distinct species of the claimed invention:

- Species 1, Embodiment 1, Fig. 3, pages 11-19;
- Species 2, Embodiment 2, Fig. 5, page 19;
- Species 3, Embodiment 3, Fig. 6, pages 19-20;
- Species 4, Embodiment 4, Fig. 7, pages 20-22;
- Species 5, Embodiment 5, Fig. 8, pages 22-24;
- Species 6, Embodiment 6, Fig. 10, pages 24-27;

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Species 7, Embodiment 7, Fig. 11, pages 27-28;

Species 8, Embodiment 8, Fig. 12, page 28;

Species 9, Embodiment 9, Fig. 13, pages 28-29.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are fully generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

During a telephone conversation with Philip E. Levy on 3/6/03 a provisional election was made with traverse to prosecute the invention of Species 6 of Group I (apparatus), claims 1-13

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and 25-35 and 39-44 (*it is noted that claims 36-38 and 45-47 require a third expansion chamber (Fig. 11) and a second etching chamber*). Affirmation of this election must be made by applicant in replying to this Office action. Claims 14-24 and 48-71 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25-35 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over admitted prior art (Fig. 1, pages 1-6).

The admitted prior art (Fig. 1) teaches an etching apparatus comprising: an etching chamber for receiving a sample to be etched; a source of etching gas (XeF_2); an expansion

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chamber in selective fluid communication with the source of etching gas and the etching chamber. The apparatus further includes a source of mixing gas such nitrogen in fluid communication with the expansion chamber.

The admitted prior art fails to teach a second expansion chamber in selective fluid communication with the source of etching gas and the etching chamber.

It is held *in re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) that a mere duplication of parts has no patentable significance unless a new and unexpected result is produced therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to include additional expansion chamber in order to provide a backup gas source such that when one expansion chamber is exhausted, the second expansion chamber can be used while the first expansion chamber is refilled with etching gas and thus increasing the throughput of the system.

It is the Examiner's position that the automatic heating and control, load lock chamber, gas analysis, gas flow rate controller are well known in the art and modification of the admitted prior art to include such limitation would have been obvious to one of ordinary skill in the art at the time of the invention.

Allowable Subject Matter

Claims 1-13 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: an etching apparatus comprising: an etching chamber for receiving and etching a sample; a source

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of etching gas; and an expansion chamber being in selective fluid communication with the etching chamber and the source of etching gas,

wherein the expansion chamber is a collapsible, variable volume chamber..

Claims 39 and 40 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nishikawa et al (US Patent No. 5,470,390) teach an apparatus (Figs. 3) for dynamic blending a semiconductor fluid (SiH_4) with a carrier gas for use by a fabrication tool at the fabrication tool site;

RD-41537 (Research Disclosure, November 1998, pages 1465-1466) teaches an automated back-up system for gas cabinet in semiconductor fabrication facility including three alarm conditions which automatically initiate cross over from primary to back-up in order to provide uninterrupted gas supply (see the entire document).

McQuarrie et al (US Patent No. 6,409,876 B1) and *McQuarrie et al (JP10-317169 A)* teach an etching apparatus including an expansion chamber and gas flow controller;

Patel et al (US Patent No. 6,290,864 B1) teach an etching chamber including an expansion chamber having a larger volume than an etching chamber (Fig. 1);

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Ishizawa et al (US Patent No. 6,328,864 B1) teach a processing system (Fig. 4) including a plurality of gas loading chambers 204a-204c; and

Winters (US Patent No. 4,190,488) teaches an etching apparatus using XeF_2 as a source of etching gas.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parviz Hassanzadeh whose telephone number is (703)308-2050. The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703)308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9310 for regular communications and (703)872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.


Parviz Hassanzadeh
Examiner
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March 7, 2003